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## NEW RIVER TRASH TMDL PROBLEM STATEMENT

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This Problem Statement includes a description of: (a) violated Water Quality Objectives that prompted TMDL development, (b) watershed characteristics, and (c) impairments caused by high trash levels.

### A. Water Quality Objectives

Water quality standards (WQS), pursuant to 40 CFR 130.2(d) and California Water Code (CWC) 13241, consist of beneficial uses and the water quality criteria (a.k.a. water quality objectives in the CWC) based on such uses. WQS adopted for the Colorado River Basin Region are contained in the Water Quality Control Plan for the Colorado River Basin Region (CRWQCB, 1994). The WQS for the New River are comprised of the beneficial uses of New River water and the New River's water quality objectives (WQOs). The WQOs are narrative and are designed to protect the most sensitive beneficial uses.

High trash levels violate: Narrative Water Quality objectives in the Water Quality Control Plan for the Colorado River Basin Region (Basin Plan) (Colorado River Basin Regional Water Quality Control Board 2003). The Basin Plan states, "waters shall not contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses" and "waters shall not contain suspended or settleable material in concentrations that cause nuisance or adversely affect beneficial uses." The levels of trash also violate narrative standards in Minute No. 264 of the Mexican-American Water Treaty that requires the water of the New River to be free from trash, oil, scum, or other floating materials resulting from human activity in amounts sufficient to be injurious, unsightly, or to cause adverse effects on human life, fish, and wildlife.

Beneficial uses listed on the 303d list to be adversely impacted from trash in the New River: Warm Freshwater Habitat (WARM), Wildlife Habitat (WILD), Water Contact Recreation (REC I) and Non-Contact Water Recreation (REC II).

**Table 1: Designated Beneficial Uses of the New River**

Designated Beneficial Uses	Description
Water Contact Recreation (REC I) <sup>1</sup>	Uses of water for recreational activities involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, swimming, wading, water skiing, skin and scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs.

Designated Beneficial Uses	Description
Water Non-Contact Recreation (REC II) <sup>1</sup>	Uses of water for recreational activities involving proximity to water, but not normally involving contact with water where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tidepool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
Warm Freshwater Habitat (WARM)	Uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish, or wildlife, including invertebrates.
Wildlife Habitat (WILD)	Uses of water that support terrestrial ecosystems including but not limited to, the preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.
Preservation of Rare, Threatened, or Endangered Species (RARE) <sup>2</sup>	Uses of water that support habitats necessary, at least in part, for the survival and successful maintenance of plant or animal species established under state or federal law as rare, threatened or endangered

1. Although some fishing occurs in the downstream reaches, the presently contaminated water in the river makes it unfit for any recreational use. An advisory has been issued by the imperial county health department warning against the consumption of any fish caught from the river and the river has been posted with advisories against any body contact with the water.
2. Rare, endangered, or threatened wildlife exists in or utilizes some of these waterway(s). If the RARE beneficial use may be affected by a water quality control decision, responsibility for substantiation of the existence of rare, endangered, or threatened species on a case-by-case basis is upon the California Department of Fish and Game on its own initiative and/or at the request of the Regional board; and such substantiation must be provided within a reasonable time frame as approved by the Regional Board.

## B. WATERSHED CHARACTERISTICS

### NEW RIVER WATERSHED

The New River watershed drains approximately 200,000 acres from the Imperial Valley, the Mexicali Metropolitan area, and approximately 300,000 acres in the Mexicali Valley, Mexico. Within the United States, the New River channel is approximately 60 miles long and up to 2/3 mile wide. Within Mexicali, Mexico, this natural channel way extends about 12-16 miles. The River carries agricultural runoff, partially treated and untreated Municipal and Industrial wastewater, stormwater, and urban runoff from the Mexicali Valley northward across the International Boundary into the United States.

The New River's flow at the International Boundary averaged 182,000 acre-feet/year (AFY) from 1980 to 1997 (Tetra Tech 1999). Once it crosses the International Boundary, the River travels

approximately 60 miles through the Imperial Valley where it is fed by: (a) agricultural return water discharged to agricultural drains owned and operated by the Imperial Irrigation District (accounting for about 2/3 of the River's flow), (b) treated Municipal and Industrial wastewater, and (c) stormwater and urban runoff (Table 2). The flow of the New River is about 600 cfs (or roughly 434,400 AFY) at its outlet with the Salton Sea. Table 2, below, shows the estimated flow composition of the New River.

**Table 2 New River Flow Sources**

<b>Source</b>	<b>Flow Contribution (% of 438,400 AFY)</b>
<b>American Sources</b>	
Agricultural runoff	62%
Treated Municipal and Industrial wastewater	2%
Stormwater and urban runoff	<0.5%
<b>Mexican Sources</b>	
Agricultural runoff	25%
Partially treated and untreated Municipal and Industrial wastewater	8%
Stormwater, urban runoff, other	2.5%

#### **CURRENT TMDLS**

The New River Pathogen TMDL and New River Silt/Sedimentation TMDL have been adopted by the Regional Board and approved by the SWRCB, OAL, and USEPA. Both TMDLs are currently being implemented.

#### **SOIL CLASSIFICATIONS**

Local soils are mostly colloidal clays and silts. These soils tend to be cohesive, and therefore not easily erodable. This is evident in that the channel of the New River and its tributary drains remain relatively stable. In-stream erosion and wind deposition are believed to be a relatively minor source of suspended sediment. All Imperial Valley soils are poorly drained due to low permeability's (less than 0.5 inches per hour).

#### **WEATHER**

The climate of the Imperial Valley is hot, with dry summers, occasional thunderstorms, and gusty high winds with sandstorms. The area is one of the most arid in the United States, with an average annual rainfall of less than 3 inches, and temperatures in excess of 100°F for more than 100 days per year. The average January temperature is 54°F, and the average July temperature is 92°F. Evapotranspiration rates for the Imperial Valley can exceed 7 feet per year, and in hot summer months, can be one-third inch per day (Setmire et al. 1990).

#### **HISTORY OF NEW RIVER POLLUTION**

The history of New River pollution is associated with Mexicali population growth and the inception of irrigated agriculture in the Imperial and Mexicali Valleys (Gruenberg 1998). In 1920, the total population of Mexicali was only 6,200. By 1955, about 25,000 people lived in Mexicali, and their raw sewage was being discharged into the New River.

Early complaints regarding New River pollution were primarily based on odor. In the early 1950s, the River stench near the boundary was often overpowering, particularly at night. In 1956, the New River's flow at the boundary increased considerably due to development of agricultural drainage return flows from Mexicali Valley. This diluted the water, and temporarily alleviated the odor. The odor problem became increasingly noticeable in the 1960s as sewage loading increased as the population of Mexicali increased. In 1975, the population jumped to over 100,000 people<sup>1</sup>. The present population of the Mexicali municipality is reportedly 764,902 (INEGI 2001), but some believe it is close to 1 million.

In 1978, the California State Department of Health Services (DHS) recommended that the New River be posted as a public health hazard, due to the presence of raw sewage. The first of 50 signs along the River was posted. Downstream of the International Boundary, the New River is dominated by agricultural return flows from Imperial Valley. Three Imperial County landfills are adjacent to the River.

## **HABITAT AND WILDLIFE**

The New River is a part of the Salton Sea Transboundary Watershed and is an important component of the Pacific Flyway, a major migratory route connecting Canada and the U.S. to Mexico and Central America. The degradation of wetland habitat elsewhere along the Pacific Flyway has rendered the area vital habitat for migratory avian species (USFWS 1997). Millions of birds representing hundreds of species, including several endangered species, use the watershed as year-round habitat.

The severe pollution of the New River has prevented the establishment of a healthy ecosystem, especially within the first 10 to 20 river miles in the U.S. Lethal dissolved oxygen concentrations, harmful pathogens, excessive sediments and nutrients, and pesticides all combine to form an extremely hazardous environment for wildlife. The diversity and abundance of life in the New River ecosystem is directly related to the River's dissolved oxygen trends (Setmire 1985).

As the New River courses through the Imperial Valley, a number of processes work to replenish the River with oxygen and thus greatly improve the opportunity for life: (1) bacteria breaks down organic waste by decreasing the organic load; (2) the River flows over drop structures which re-aerate the water through agitation; and (3) agricultural return flows input water that has a relatively high dissolved oxygen content. Dissolved oxygen levels return to around 4 mg/L, about 10 miles from the River's outlet to the Salton Sea.

The New River's riparian corridors and deltas are potential major wildlife movement corridors and constitute sensitive habitat. The dominant plant species in these corridors is salt cedar, an introduced species that has suffocates native vegetation. Other plant species include reeds, cattails, and arrowheads (Montgomery 1987).

Stream biota must withstand extremes in water quality arising from wild fluctuations in dissolved oxygen, as well as variation in temperature. These stresses result in severely decreased biological diversity in the New River. However, large numbers of birds flock to the area because of the abundance of water in the middle of a desert. The diversity and abundance of bird

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<sup>1</sup> Due to the recent industrial growth in Mexicali, industry is now believed also to be an increasingly significant source of New River pollution.

species increases as dissolved oxygen increases, as the New River flows closer to the Salton Sea.

Birds are the most diverse wildlife group using the New River watershed. Over 50 bird species are represented. The most common birds are the burrowing owl (state and federal species of concern), savannah sparrow, yellow-rumped warbler, and red-winged blackbird. The New River watershed is also potential habitat for the Yuma clapper rail (state-fully-protected-threatened and federally endangered) (USFWS 1997) and California Black rail (state-fully-protected-threatened). Other songbirds and shorebirds that inhabit the area include the western yellow-billed cuckoo, great blue heron, black-necked stilt, American avocet, cattle egret, white-faced ibis, and double-crested cormorant.

Fish in the New River watershed include mosquitofish, carp, yellow bullhead channel and flathead catfish, tilapia, longjaw mudsucker, largemouth bass, red shiner, and sailfin mollie. The desert pupfish (state and federally endangered) is found in IID Ag Drains and the New River near the outlet to the Salton Sea (USFWS 1997). Fish species inhabiting the New River are relatively well-adapted to extreme conditions in water quality, but are still vulnerable to lethal dissolved oxygen concentrations in the upper reaches.

## **RECREATIONAL ACTIVITIES**

Decomposing sewage and foul odor impede and or inhibit recreational activities on the banks of the river and or at the river. Untreated industrial and urban dissolved organic matter may be a threat to public health.

## **C. IMPAIRMENT BY TRASH**

During monthly 8-hour and quarterly 24-hour sampling events of the New River at the International Boundary, Regional Board staff has routinely observed trash floating in the New River. Imperial County Sanitation Department estimates that about 20 tons of accumulated trash is removed from the River every other month. The major source of trash in the New River is from Mexico, which has inadequate land disposal systems and sewage infrastructure. Small and large floatables can inhibit the growth of aquatic vegetation, decreasing spawning areas for fish, and degrade habitat for fish and other living organisms. Ingesting or becoming entangled in floating trash can harm wildlife living in rivers and in riparian areas. Except for large items such as shopping carts, settleables are not always obvious to the eye. They include glass, cigarette butts, rubber, construction debris and more. Settleables can be a problem for bottom feeders and can contribute to sediment contamination. Some debris e.g. (diapers, medical and household waste, and chemicals) are a source of bacteria and toxic substances. Floating debris that is not trapped and removed will eventually end up degrading the Salton Sea.